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**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Amendment of the Commission's)	ET Docket No. 95-183
Rules Regarding the 37.0-38.6 GHz and)	RM-8553
38.6-40.0 GHz Bands)	
)	
Implementation of Section 309(j) of the)	PP Docket No. 93-253
Communications Act – Competitive)	
Bidding, 37.0-38.6 GHz and 38.6-40.0 GHz)	
Bands)	

THIRD NOTICE OF PROPOSED RULEMAKING

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I. INTRODUCTION AND EXECUTIVE SUMMARY

1. In the Notice of Proposed Rule Making and Order that initiated the above-captioned proceeding in 1995, we proposed to amend the rules for fixed, point-to-point microwave service in the 38.6-40.0 GHz ("39 GHz") band, and to adopt a conforming set of new rules for the virtually unused 37.0-38.6 GHz ("37 GHz") band in order to allow for the expansion of 39 GHz-type service.¹ In this *Third Notice of Proposed Rule Making* ("*Third NPRM*"), we propose service rules for the 37 GHz and also for the 42.0-42.5 GHz ("42 GHz") ("37/42 GHz") bands that would substantially conform to the rules adopted for the 39 GHz band in the *Report and Order* and *Second Notice of Proposed Rule Making*² and the *Second Report and Order*³ in this proceeding. We recognize, however, that conditions have changed considerably over the past few years, and we are willing to consider alternatives if commenters demonstrate that a different regulatory framework would be more appropriate for the 37/42 GHz bands. Our goal is to establish a flexible regulatory and licensing framework that would promote seamless deployment of a host of services and technologies in the 37 GHz and 42 GHz bands. We seek to enhance opportunities for deployment of broadband wireless services, foster effective competition, promote innovation and further our efforts for consistent rule application regarding broadband wireless services.

2. Significant changes in spectrum allocations, technology, and market conditions have occurred since the adoption of the 39 GHz rules and auction. Consequently, we invite comments on all of the unresolved issues in this proceeding. We do not seek comment on issues that were decided in the allocation

¹ *Notice of Proposed Rule Making and Order*, 11 FCC Rcd 4930 (1995) ("*First NPRM and Order*").

² See Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands, *Report and Order* and *Second Notice of Proposed Rule Making*, ET Docket No. 95-183, 12 FCC Rcd 18,600 (1997) (*Report and Order* and *Second NPRM*), on reconsideration, *Memorandum Opinion and Order*, 14 FCC Rcd 12,428 (1999) ("*Memorandum Opinion and Order*").

³ Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz, and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0-38.0 GHz and 40.0-40.5 GHz for Government Operations, *Second Report and Order*, IB Docket No. 97-95 (FCC 03-296, released Dec. 5, 2003) ("*36-51 GHz Second R&O*").

item in the *Second Report and Order*, such as the soft segmentation of the frequency bands for satellite and terrestrial services. Accordingly, we seek comment on proposed 37/42 GHz band service rules that are affected by these proposed changes, and in one case we propose to apply these rules to the 39 GHz band as well. Specifically:

- We propose to license the 37/42 GHz bands on a geographic basis using Economic Areas ("EAs"), consistent with the licensing scheme adopted for the 39 GHz band, but we invite comment on alternative approaches as well.
- We propose to permit point-to-point, point-to-multipoint, and future mobile operations.
- We propose to adopt a "substantial service" build-out requirement if the band is licensed using EA licenses, but we invite comment on alternative build-out requirements if we adopt a different licensing scheme.
- We propose technical rules designed to provide licensees with operational flexibility.
- We propose to permit 37/42 GHz band licensees to partition and disaggregate spectrum if the band is licensed by EAs.
- We seek comment on whether to adopt a channeling plan for the 37/42 GHz bands, and, if so, what plan to propose.
- We propose to require coordination whenever and wherever facilities have optical radio line-of-sight into another licensee's geographic area or registered site license.
- We seek comment on the appropriate coordination method to employ between adjacent licensees and with the Federal government. We propose to apply these changes to the 39 GHz band as well as the 37/42 GHz bands.
- If we license the bands by EAs when awarding 37/42 GHz licenses, we propose to use the competitive bidding procedures set out in Part 1, Subpart Q of our rules.

II. BACKGROUND

3. On September 9, 1994, the Fixed Point-to-Point Microwave Section of the Telecommunications Industry Association ("TIA") filed a Petition for Rulemaking proposing a channeling plan and technical rules for microwave service in the 37 GHz and 39 GHz bands.⁴ TIA requested the availability of this spectrum for broadband Personal Communications Service ("PCS") operators, cellular operators and other common carrier and private operators in order to satisfy point-to-point communications needs. In response to the TIA Petition, on December 15, 1995, the Commission initiated this proceeding to facilitate operations that provide communications infrastructure.⁵ In this regard, the Commission decided to harmonize licensing and technical rules for the 37 and 39 GHz bands to improve the 39 GHz band licensing

⁴ See TIA Petition for Rulemaking, RM 8553 (filed Sept. 9, 1994); TIA Amendment to Petition for Rulemaking, RM-8553 (filed May 4, 1995) ("TIA Petition"). For a full description of the history of this proceeding, see *Report and Order and Second NPRM*, 12 FCC Rcd at 18,606-09 ¶¶ 4-11.

⁵ *First NPRM and Order*.

process and to allow interested parties to expand their operations to the 37 GHz band.⁶

4. After the release and adoption of the *NPRM and Order*, Motorola Satellite Systems, Inc. petitioned the Commission to permit the provision of satellite services in the 37 GHz band and in other high gigahertz frequency bands.⁷ Partially in response to this petition, the Commission initiated a proceeding to address the 36.0-51.4 GHz band *in toto*,⁸ including designating 4 GHz of spectrum for fixed-satellite services ("FSS") on a primary basis, 4.6 GHz of spectrum for wireless services⁹ and amending the Federal Government allocations in the 37.0-38.0 GHz and 40.0-40.5 GHz bands to include space research and earth exploration satellite operations.¹⁰

5. The 39 GHz portion of the spectrum in the 36.0-51.4 GHz band already was partially licensed and subject to additional applications, and on November 3, 1997, the Commission released the *Report and Order and Second NPRM* in this proceeding, which established a new licensing approach for the 39 GHz spectrum.¹¹ This action amended Parts 1 and 101 of our rules to facilitate more effective use of the 39 GHz band by allowing existing and new licensees to provide a broader array of services to the public.¹² In this regard, the Commission noted that much wider uses of the spectrum were anticipated than were contemplated when it initiated this proceeding.¹³ Specifically, a number of commenters stated that 39 GHz band facilities are employed to provide wireless equal access, LAN-to-LAN communications, and other high capacity data transmission services.¹⁴

6. On December 17, 1998, the Commission adopted the *36-51 GHz Order* establishing a band segmentation plan for non-Federal Government operations in the 36.0-51.4 GHz frequency band.¹⁵ The Commission sought to create an overall framework for deployment of services and development of technologies in the bands, increase certainty in business planning, and clarify the relationship among various ongoing Commission proceedings.¹⁶ Due to the difficulty of sharing between area-wide terrestrial wireless systems and satellite systems, the *36-51 GHz Order* provided separate designations within the band for implementation of non-Federal Government wireless services and non-Federal Government

⁶ *Id.* at 4,937-38 ¶ 13.

⁷ See Motorola Satellite Systems, Inc. Application to Construct, Launch and Operate the M-Star System, File No. 157-SAT-P/LA-96(72) (filed Sept. 4, 1996); Motorola Petition for Rulemaking, RM-8811 (filed Mar. 4, 1996).

⁸ Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz, and 48.2-50.2 GHz Frequency Bands, *Notice of Proposed Rulemaking*, IB Docket No. 97-95, 12 FCC Rcd 10,130 (1997) ("*36-51 GHz NPRM*").

⁹ *Id.* at 10,136-38 ¶ 14.

¹⁰ *Id.* at 10,44-45 ¶¶ 30-33.

¹¹ Amendment of the Commission's Rules Regarding the 37.0-38.6 and 38.6-40.0 GHz Bands, *Report and Order and Second Notice of Proposed Rule Making*, 12 FCC Rcd 18,600 (1997) ("*Report and Order and Second NPRM*").

¹² *Id.* at 18,604-05 ¶ 2.

¹³ *Id.* at 18,629 ¶ 59.

¹⁴ *Id.*

¹⁵ Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz, and 48.2-50.2 GHz Frequency Bands, *Report and Order*, IB Docket No. 97-95, 13 FCC Rcd 24,649 (1998) ("*36-51 GHz Order*"), *affirmed*, *Order on Reconsideration*, 15 FCC Rcd 1,766 (1999) ("*36-51 GHz Reconsideration Order*").

¹⁶ *Id.* at 24,651 ¶ 1.

FSS.¹⁷ The *36-51 GHz Order* also reallocated the 37.6-38.6 GHz portion of the 37 GHz band for FSS use, and added new wireless designations on a primary basis in the 37/42 GHz, 46.9-47.0 GHz and 50.4-51.4 GHz bands.¹⁸

7. At the 2000 World Radiocommunication Conference ("WRC-2000"), the International Telecommunication Union ("ITU")¹⁹ adopted a "soft segmentation" plan that favored terrestrial wireless services in the 37 GHz, 39 GHz and 42.0-43.5 GHz bands, and favored satellite services in the 40.0-42.0 GHz band.²⁰ In response to this allocation, on May 31, 2001, the Commission issued the *36-51 GHz Further Notice*²¹ proposing to modify the allocation for the 36.0-51.4 GHz band to reflect the international sharing arrangement established at WRC-2000. Essentially, the Commission decided to allocate Fixed Service ("FS") and FSS on a co-primary basis in most of the 37.0-43.5 GHz band.²² In addition, the Commission proposed to designate the 37.0-40.0 GHz band and the 42.0-42.5 GHz band for ubiquitous wireless services, considered the addition of fixed and mobile for non-Federal Government use to the 42.5-43.5 GHz band, proposed limiting the power flux density ("PFD") at the surface of the earth for satellite transmissions, and restricting satellite earth stations in these bands to gateways.²³ The Commission determined that it would examine service and licensing rules for these bands in a future proceeding.²⁴

8. On December 5, 2003, the Commission released the *36-51 GHz Second R&O*, which predominantly affirmed the *36-51 GHz Further Notice* and shifted FS, FSS and Mobile Satellite Service ("MSS") allocations and re-designated portions of the spectrum for FS and FSS so as to encourage FS use of the 37.0-40.0 GHz and 42.0-42.5 GHz bands, and a combination of FSS, MSS and Broadcast Satellite Service ("BSS") in the 40.0-42.0 GHz band. The Commission also adopted PFD limits for satellites consistent with the PFD limits adopted at WRC-2000, restricted satellite earth stations in the 37 GHz band to gateways, and adopted the FS and FSS designations that support "soft segmentation" of these three bands from 37 GHz to 42.5 GHz.

¹⁷ *36-51 GHz Order*, 13 FCC Rcd at 24,654 ¶ 10, 24,671-72 ¶ 43.

¹⁸ *Id.* at 24,651 ¶ 2, 24,668 ¶¶ 34-36. The 46.9-47.0 GHz and 50.5-51.4 GHz bands will be addressed in a subsequent proceeding.

¹⁹ The ITU holds multi-national World Radiocommunication Conferences (WRCs) at two or three year intervals to establish international provisions governing the use of the electromagnetic spectrum.

²⁰ See CITEL Administrations, *Proposals for the Work of the Conference*, Doc. 14-E, Addendum 1 at 15 (Mar. 25, 2000 (CITEL Proposals)).

²¹ See Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands, *Further Notice of Proposed Rule Making*, IB Docket No. 97-95, 16 FCC Rcd 12,244 (2001) ("*36-51 GHz Further Notice*").

²² See *36-51 GHz Further Notice*, 16 FCC Rcd at 12249 (citing Final Acts of the World Radiocommunication Conference (Istanbul, 2000) ("*WRC-2000 Final Acts*"), Article S5).

²³ *Id.* at 16 FCC Rcd 12244 ¶¶ 12-13, 12,250 ¶ 46. See ¶¶ 76 and 81, *infra*, for discussion of existing and proposed rules delineating methods by which earth station or satellite licensees may obtain access to spectrum in the 37/42 GHz bands, either by bidding competitively for licenses under Part 101, which governs terrestrial fixed microwave services, or by securing license agreements with Part 101 licensees. In paragraph 77, *infra*, we propose to apply the same coordination triggers to Part 101 earth station licensees and to terrestrial stations in the 37/42 GHz bands.

²⁴ *36-51 GHz Further Notice*, 16 FCC Rcd at 12,244 n.4.

III. THIRD NOTICE OF PROPOSED RULEMAKING

9. In keeping with the Commission's initial plan to establish licensing and technical rules to allow 39 GHz licensees to expand their operations to the 37 GHz band, in this NPRM we propose service rules for the 37/42 GHz bands that would be (1) substantially the same as those applicable to the 39 GHz band, and (2) consistent with the allocation and designation in the *36-51 GHz Second R&O* to propose parallel rules for the 37/42 GHz and 39 GHz bands.²⁵ We invite comment on alternative frameworks as well, including the possibility of using a first-come, first-served link-registration approach comparable to the regulations that we recently applied to the sparsely developed 70, 80, and 90 GHz bands.²⁶

10. The principal arguments in favor of applying a 39-GHz-style regulatory structure to the 37/42 GHz bands are proximity, similarity in anticipated uses, and comparable propagation characteristics of the bands.²⁷ Similar to 39 GHz, the 37/42 GHz bands likely will be used to provide such services as backhaul and backbone communications links for services such as broadband PCS, wireless local loops, connection and interconnection services to private networks and Internet access. In addition, operations in the 37/42 GHz bands and the 39 GHz band will be similar in path length, free space loss and degradation due to rain. The main difference between the 37/42 GHz band and the 39 GHz band is that the 37/42 GHz band does not have incumbent terrestrial wireless licensees, but does have some existing and proposed Federal Government installations. Non-Federal Government licensees are cautioned that the Federal government has a co-primary allocation in the 37.0-38.6 GHz band and has plans to operate stations in the band in the future.²⁸ Creating regulatory symmetry to the extent feasible for these bands arguably would facilitate spectrum aggregation, equipment development, and service planning and development for both the 39 GHz and 37/42 GHz bands. Applying policies favoring flexibility of use as embodied in the 39 GHz service rules to this nearby band could help encourage efficient spectrum use.²⁹ Finally, such rules could facilitate operations that provide communications infrastructure and fixed services. Appendix B provides the text of rules that could be used to regulate the 37/42 GHz bands under this approach, pursuant to Parts 1 and 101 of our rules.³⁰

11. The principal argument against applying 39 GHz-type rules is that those rules are premised on the assumption that service providers will be ready, willing, and able to build out fully and provide service on an EA-wide basis. Some companies raised substantial amounts of money under that business model but later experienced major difficulties, including bankruptcy. We do not know yet to what extent such service providers will develop the 39 GHz band, nor do we know to what extent they will require overflow capacity in the 37/42 GHz bands. While some potential licensees may lack the resources to develop entire geographic areas, or their business plans may call for a more focused pattern of deployment, however, the

²⁵ See *36-51 GHz Second R&O*, ¶¶ 12-17.

²⁶ See *Allocations and Service Rules for the 71-76 GHz, 81-86 GHz, and 92-95 GHz Bands, Report and Order* (FCC 03-248, released Nov. 4, 2003) ("*70/80/90 GHz Report and Order*"). Hereinafter, we refer to the channels involved as the "70/80/90 GHz bands."

²⁷ See *Report and Order and Second NPRM*, 12 FCC Rcd at 18,619 ¶ 33.

²⁸ See discussion in ¶¶ 62-64 and ¶¶ 83-95.

²⁹ See *Principles for Reallocation of Spectrum to Encourage the Development of Telecommunications Technologies for the New Millennium, Policy Statement*, 14 FCC Rcd 19868, 19870 ¶ 9 (1999) (*Spectrum Reallocation Policy Statement*). When it amended Section 309(j) of the Communications Act to provide the Commission with expanded auction authority, Congress intended "to ensure that scarce spectrum is put to its highest and best use." H.R. Conf. Rep. No. 105-217, 143 Cong. Rec. H6173 (daily ed. July 29, 1997).

³⁰ See Appendix C, reflecting proposed changes to 47 C.F.R. Parts 1 and 101.

Commission has increasingly provided its licensees with additional flexibility to address those concerns. For example, licensees in many wireless services may now make excess spectrum available through secondary markets, and spectrum users may be able to lease spectrum under streamlined processes without becoming Commission licensees.³¹

12. The 37/42 GHz spectrum has available one block of 1600 megahertz (37 GHz) and one block of 500 megahertz (42 GHz). Because we have such a large amount of spectrum available, we also wish to explore whether the Commission should license portions of these blocks by EAs and other portions on a site-by-site basis. By using this combined approach to licensing, the Commission may address more effectively the needs of large entities as well as the smaller businesses, including public safety entities, that may neither require large blocks of spectrum nor be able to afford the financial outlays for EAs. For example, we could license the 1600 megahertz in 50-megahertz channel pairs by EAs and use the 500 megahertz in the 42 GHz band for site-by-site licensing. It would also be possible to license the upper half (800 megahertz) of the 1600-megahertz block in the 37 GHz band by EAs and provide for site-by-site registration in the lower half of that block. One way to apply a site-by-site licensing approach would be to adopt the model used in the 70/80/90 GHz proceeding.³² Therefore, we seek comment on the benefits of having some spectrum licensed by geographic areas and some spectrum licensed on a site-by-site basis. We ask commenters to propose specific spectrum plans, including recommendations for the amount of spectrum to be licensed by geographic areas or registered on a site-by-site basis, and to describe in detail the potential benefits of each plan.

13. We ask commenters to evaluate the ways in which alternative licensing schemes may constrain or expand our ability to allow maximum operational flexibility. As discussed in paragraphs 24 through 30, below, this Commission has found it possible to authorize mobile and omnidirectional services when issuing licenses on a geographic area basis but has used link-by-link licensing primarily to support fixed point-to-point services.

14. We seek comment on the state of the market, the technology, and the investment climate for service in the 37/42 GHz bands, and on regulations that would be consistent with those conditions both present and future.

A. Service Areas

15. Background. When establishing geographic service areas and build-out requirements for any particular type of license, we seek to accommodate the sometimes competing objectives of diversity, economic efficiency, ubiquity, and innovation.³³ Smaller service areas make it easier for small businesses to bid successfully for licenses, but viable businesses may require larger service areas. We also seek to foster the delivery of services to rural areas³⁴ and to promote investment in and rapid deployment of new technologies and services.³⁵

16. In the *First NPRM and Order*, the Commission proposed to license all channel blocks in the

³¹ See *Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets, Report and Order and Further Notice of Proposed Rulemaking*, WT Docket No. 00-230, FCC 03-113 (rel. Oct. 6, 2003) ("*Secondary Markets Report and Order*").

³² See *70/80/90 GHz Report and Order*, cited at note 26, *supra*.

³³ See 47 U.S.C. §§ 309(j)(3)(B), (4)(C).

³⁴ See 47 U.S.C. § 309(j)(3)(A).

³⁵ See 47 U.S.C. § 309(j)(4)(C)(iii).

39 GHz band on the basis of exclusive licenses for geographic areas, using Rand McNally & Company's Basic Trading Area ("BTA") service areas.³⁶ Comments responsive to the *First NPRM and Order* supported the use of exclusive area-wide licenses using BTAs for the band.³⁷ The Commission adopted this proposal in the *Report and Order and Second NPRM*, because BTAs were representative of the geographic areas in which the types of services envisioned for the 39 GHz band were likely to be provided.³⁸ At that time, the Commission rejected the notion of permitting applicants to continue to define their own service areas on the basis that pre-defined service areas would provide a more orderly structure for the licensing process and foster efficient use of the spectrum in an expeditious manner.³⁹ In addition, for those interested in tailoring a service area to other smaller or larger markets, the Commission reasoned that its service rules permitted aggregation,⁴⁰ partitioning and disaggregation.⁴¹ The Commission also declined to license the 39 GHz band via larger geographic areas, such as Major Trading Areas, which are aggregations of BTAs.⁴² The Commission explained that although its rules allowed spectrum aggregation for those seeking larger geographic areas, the record did not support the notion that most licensees would seek to provide service over vast geographic regions.⁴³ Instead, based upon the services being proposed, the Commission anticipated that the 39 GHz band would be used for services that are local or regional in nature.⁴⁴

17. However, subsequent developments concerning Rand McNally's copyright interest in BTAs led the Commission to conclude that using BTAs as service areas could delay the 39 GHz licensing process.⁴⁵ It, therefore, reconsidered its service area definition and selected EAs.⁴⁶

18. We adopted a different approach in the *70/80/90 GHz Report and Order*. In that proceeding,

³⁶ *First NPRM and Order*, 11 FCC Rcd at 4941 ¶ 22.

³⁷ See, e.g., Advanced Radio Telecom Corporation (ART) Comments at 47; AT&T Wireless Services (AT&T Wireless) Comments at 5; BizTel Inc. (BizTel) Comments at 15; Commco, L.L.C. (Commco) Comments at 9; DCR Communications, Inc. (DCR) Comments at 6; GTE Service Corporation (GTE) Comments at 4; Milliwave Limited Partnership (Milliwave) Comments at 8; Pacific Bell Mobile Services (Pacific) Comments at 4; Personal Communications Industry Association (PCIA) Comments at 3; Telco Group, Inc. (TGI) Comments at 11; Telephone and Data Systems, Inc. (TDS) Comments at 5-6; Fixed Point-to-Point Communications Section, Network Equipment Division of the Telecommunications Industry Association (TIA Equipment) Comments at 9; U S West Inc. (U S West) Reply at 6.

³⁸ *Report and Order and Second NPRM*, 12 FCC Rcd at 18,610 ¶ 14.

³⁹ *Report and Order and Second NPRM*, 12 FCC Rcd at 18,610 ¶ 13. The Commission explained that applicant-defined service areas, while giving entities the opportunity to apply only for that area which they intended to serve, did not result in expeditious licensing of the spectrum because the mutually exclusive situations were complex and overlapping.

⁴⁰ *Id.* at 18,626-28 ¶¶ 52-57.

⁴¹ *Report and Order and Second NPRM*, 12 FCC Rcd at 18,635 ¶ 71.

⁴² See, e.g., WinStar Communications, Inc. (WinStar) Comments at 12, Milliwave Reply Comments at 17 (supporting the use of MTAs).

⁴³ *Report and Order and Second NPRM*, 12 FCC Rcd at 18,611 ¶ 15.

⁴⁴ *Id.*, 12 FCC Rcd at 18,610-11 ¶ 14.

⁴⁵ *Memorandum Opinion and Order*, 14 FCC Rcd at 12,452-53 ¶ 46.

⁴⁶ See *id.*

we decided to issue non-exclusive nationwide licenses conditioned upon site and path-specific coordination.⁴⁷ Because of the short path links and tightly focused beams that are necessary and feasible at those high frequencies, the Commission reasoned that many service providers would be able to engineer their systems to operate in close proximity to each other without causing mutual interference.⁴⁸ To facilitate coordination, the Commission adopted non-interference requirements and required all licensees to register their facilities in a database accessible to other licensees, on a first-come, first-served basis.⁴⁹ The Commission determined that it would impose no limit to the number of non-exclusive nationwide licenses that it would grant for the 70/80/90 GHz bands.⁵⁰ Consistent with its decision not to issue exclusive licenses for geographic areas, it did not adopt any area-wide substantial service requirements, deciding instead to require licensees to construct individual links within 12 months after registering them.⁵¹

19. Discussion. In reaching its decision to license all 39 GHz channel blocks using exclusive licenses for EAs, the Commission concluded that this service area designation would provide ample population coverage and allow licensees the flexibility to provide many different types of services, which would promote an equitable distribution of licenses and services among geographic areas, encourage economic opportunities among a wide variety of applicants, and foster investment and rapid deployment of new technologies and services.⁵² For the same reasons, and for consistency, we tentatively conclude that the most appropriate service area designation for licensing the 37/42 GHz bands would be EAs, if we decide to issue exclusive area-wide licenses or a combination of area-wide licenses and site-by site licenses.

20. The use of EAs as defined by the U.S. Department of Commerce Bureau of Economic Analysis as of February 1995 would provide a seamless overlay for entities that choose to provide services in both the 37/42 GHz and 39 GHz bands.⁵³ Accordingly, we propose to issue a total of 175 authorizations (172 EAs, and three additional areas, covering Guam and Northern Mariana Islands; Puerto Rico and the U.S. Virgin Islands; and American Samoa) for each 37/42 GHz channel block.⁵⁴ In order to be consistent with the 39 GHz EA service areas, we propose to utilize the 1995 EAs, as modified by the Commission, which were in effect on April 12, 2000, the start-date of the 39 GHz auction.⁵⁵ For entities desiring areas smaller than EAs, we would permit partitioning and disaggregation of EA licenses.⁵⁶ Adoption of a

⁴⁷ 70/80/90 GHz Report and Order at ¶¶ 43-60.

⁴⁸ *Id.* at ¶ 45.

⁴⁹ *Id.* at ¶¶ 48-60.

⁵⁰ *Id.* at ¶ 46.

⁵¹ *Id.* at ¶ 80.

⁵² See *Memorandum Opinion and Order*, 14 FCC Rcd at 12,452-53 ¶ 46.

⁵³ The *Memorandum Opinion and Order*, which set service areas for the 39 GHz band on the basis of EAs, was released in 1995. Thus the Commission utilized EAs as defined in 1995 by the U.S. Department of Commerce Bureau of Economic Analysis.

⁵⁴ See 47 C.F.R. § 90.7.

⁵⁵ The EA service areas used by the Commission are based on the Economic Areas delineated by the Regional Economic Analysis Division, Bureau of Economic Analysis, U.S. Department of Commerce in 1995, with the following additions: Guam and the Northern Mariana Islands; Puerto Rico and the U.S. Virgin Islands; American Samoa; and the Gulf of Mexico. See <http://www.fcc.gov/oet/info/maps/areas/>.

⁵⁶ See paras. 44-49, *infra*.

geographic area licensing approach – in contrast to a station-defined (*i.e.*, site-by-site) licensing approach – for the 37/42 GHz band likely would result in the acceptance of mutually exclusive license applications, which would need to be assigned through competitive bidding under section 309(j) of the Communications Act, as amended (“Communications Act”).⁵⁷

21. We seek comment below on a number of issues relating to the competitive bidding procedures we should use in any auction of geographic-area licenses in this band.⁵⁸ The geographic license would constitute a blanket authorization to construct and operate stations at any available site within the licensed area on the licensed spectrum. In general, we propose to allow geographic area licensees to construct and operate their stations pursuant to the procedures set out in Section 1.2113 of our rules, and we seek comment on any clarifications, extensions, or exceptions to that rule that may be necessary. We propose to require geographic area licensees to license individually any station⁵⁹ that requires an Environmental Assessment pursuant to Section 1.1307 of our rules⁶⁰ or international coordination, or would affect the radio quiet zones described in Section 1.924 of our rules.⁶¹

22. In the alternative, if we choose to adopt the kind of regulatory approach that we have applied to the 70/80/90 GHz bands, we propose to issue multiple, non-exclusive nationwide licenses. We recognize, of course, that there are significant differences between the 37/42 GHz and 70/80/90 GHz bands with respect to propagation characteristics and engineering requirements,⁶² and that there likely will be more demand for the lower frequencies. For those reasons, we seek comments on whether an exclusive use, geographic area licensing approach, a 70/80/90 GHz-like framework, or a combination of both would be more appropriate for the 37/42 GHz bands. We seek comment on what modifications to the licensing structure adopted in the 70/80/90 GHz R&O would be necessary to adapt it to the differing requirements of the 37/42 GHz bands.⁶³ We invite comment on other alternatives that commenters might care to recommend.

⁵⁷ 47 U.S.C. § 309(j); see Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended, *Report and Order and Further Notice of Proposed Rule Making*, WT Docket No. 99-87, 15 FCC Rcd 22709 (1999) (“BBA Report and Order”) (establishing the analytical framework for the Commission’s exercise of its auction authority).

⁵⁸ See para. 96, *infra*.

⁵⁹ See § 101.58 *System operations* in the Proposed Rules, Appendix C.

⁶⁰ See 47 C.F.R. § 1.1307.

⁶¹ See 47 C.F.R. § 1.924.

⁶² While it is generally true that an antenna of a given size produces tighter beamwidths for higher frequency transmissions, it does not necessarily follow that higher frequency operations create less interference than lower frequency operations. For example, a 70/80/90 GHz system may require two links (hops) to cover the same distance as a single link in a 37 GHz system. Because two successive links must operate on different frequencies from each other to avoid interference, the 70/80/90 GHz system might require twice as much spectrum as an equivalent 37 GHz system. Thirty-seven GHz systems offer a better potential for using antennas with wider patterns, such as beamwidths of 45 degrees, for multipoint operations. To reach the same number of points, a 70/80/90 GHz system might require multiple transmissions on different paths.

⁶³ Because the 37/42 GHz bands are so close to the 39 GHz band, applying the 39 GHz regulatory model to the 37/42 GHz bands probably would require less adaptation than applying the 70/80/90 GHz model.

B. Regulatory Framework

23. Background. The 37/42 GHz bands are allocated for both fixed and mobile services.⁶⁴ In the *First NPRM and Order*, the Commission requested comment on whether to permit point-to-multipoint systems and mobile services in addition to point-to-point operations.⁶⁵ Many parties commenting in this proceeding encouraged the Commission to allow licensees to determine the best uses of the band, and in particular requested the authority to provide point-to-multipoint and mobile services, as the technology to provide these services becomes available.⁶⁶ In the *Report and Order and Second NPRM*, the Commission concluded that it was imperative not to take any regulatory actions that would hamper the continued development and growth potential of the 39 GHz service.⁶⁷ Accordingly, the Commission adopted a flexible framework such that mixed use of the band was permitted by several service types, including point-to-point, point-to-multipoint, fixed, and, upon adoption of interference protection criteria, mobile operations in the 39 GHz band.⁶⁸

24. In contrast, the Commission adopted technical rules in its *70/80/90 GHz Report and Order* requiring "pencil-beam" transmissions that effectively preclude point-to-multipoint or mobile operations in that spectrum.⁶⁹ The Commission did not address the possibility of authorizing such operations, as the Commission foresaw that, unless it required tightly focused radiation patterns, legacy antennas with undesirable radiation patterns could pose serious obstacles to the growth of microwave links in heavily populated areas in the future.⁷⁰ In justifying its choice of a non-exclusive link-by-link regulatory framework for the 70/80/90 GHz band, the Commission cited several factors: (i) the unique propagation characteristics and nature of the spectrum resources involved, including the ability to engineer systems to operate in close proximity to each other without causing mutual interference, (ii) the characteristics of equipment being proposed by manufacturers, i.e., systems designed to concentrate radiated power in very narrow paths, and (iii) the need to share the bands involved with other services, including Federal government systems requiring prior coordination to avoid mutual interference.⁷¹ The Commission found that such an approach could be particularly beneficial in less-densely populated rural and suburban areas, where there is an even lower chance of interference.⁷²

25. Discussion. Because this spectrum is allocated for mobile and fixed use, we propose to allow mobile use in the future, if and when the technology develops, and a demand for mobile service in these bands exists. Until then, we propose to provide licensees with the flexibility that will eventually allow

⁶⁴ See 47 C.F.R. § 2.106.

⁶⁵ *First NPRM and Order*, 11 FCC Rcd at 4,937-38 ¶ 13.

⁶⁶ See, e.g., ART Comments at 44; Altron Communications L.C. (Altron) Comments at 2; Milliwave Comments at 27; Spectrum Communications, L.C. (Spectrum) Comments at 3; Bachow and Associates, Inc. (Bachow) Comments at 9; Columbia Millimeter Communications, L.P. (Columbia) Comments at 12-15; GHz Equipment Company (GEC) Comments at 3; WinStar Reply Comments at 9-10.

⁶⁷ *Report and Order and Second NPRM*, 12 FCC Rcd at 18,613 ¶ 20.

⁶⁸ *Id.* at 18,613-15 ¶¶ 20-25.

⁶⁹ The Commission required that minimum antenna gain be 50 dBi and that maximum beamwidth to 3 dB points be 0.6 degrees. *70/80/90 GHz Report and Order* at ¶ 96.

⁷⁰ *Id.*

⁷¹ *Id.* at ¶ 45.

⁷² *Id.*

mobile terrestrial operations (upon adoption of interference protection criteria for mobile operations and specific coordination methods with the Federal Government), and fixed point-to-multipoint operations as well as fixed point-to-point operations in the 37/42 GHz bands. We seek comment below on what kind of regulatory framework, consistent with economic realities, would be most compatible with flexible operational rules. Parts 27 and 101 of our rules have provided regulatory frameworks for mixed-use operations in the past. We seek comment on whether such operations would only be feasible under a geographic area licensing approach, or whether provision for such flexibility would also be possible within a 70/80/90-type licensing framework. In addition, we ask commenters to consider the possibility that a combination of both regulatory models might provide the most effective framework.

26. The adoption of a mixed use regulatory framework for the 39 GHz service in 1997 is consistent with more recent Commission efforts to establish the maximum feasible flexibility in both allocations and service rules as a critical means of ensuring that spectrum is put to its most beneficial use. For example, in a 1999 *Policy Statement* on spectrum management, the Commission observed that “[i]n the majority of cases, efficient spectrum markets will lead to use of spectrum for . . . highest value end use,” and that “[f]lexible allocations may result in more efficient spectrum markets.”⁷³ In addition, the flexible framework is consistent with continued Commission efforts to move toward innovative approaches to spectrum policy that are designed to maximize the public interest benefits derived from the use of radio spectrum.⁷⁴

27. We believe that such a proposal to permit flexible use by all fixed and mobile services would promote the intensive and efficient use of this spectrum. Here, as in the 700 MHz and Advanced Wireless Service proceedings,⁷⁵ we believe this would allow the 37/42 GHz spectrum to be employed for a full range of allocated services. Accordingly, we propose that our service rules for these bands should permit a licensee to use this spectrum for any use permitted by the United States Table of Frequency Allocations contained in Part 2 of our rules (i.e., fixed or mobile services). In this regard, we seek comment on what impact permitting flexible use of this spectrum would have on investment in new technology and communications services for these bands. Commenters advocating a less flexible approach should delineate what specific restrictions they would have us apply concerning how spectrum should be used by a licensee, and provide detailed analysis of the economic tradeoffs between flexibility and investment that justify any particular recommended use restriction. We also seek comment on types of uses that pose the greatest risk of interference to uses planned by parties interested in using this spectrum.

28. Given that we propose to permit flexible use of these bands for both mobile and fixed services, we seek comment on whether to do so under a 39-GHz-type, exclusive geographic area licensing approach or under a 70/80/90-type licensing framework where licensees “share” the spectrum resource on a first-come, first-served type arrangement with frequency coordinators.⁷⁶ Both of these services are licensed under our Part 101 rules. We also seek comment on whether the spectrum could be regulated more

⁷³ *Spectrum Policy Statement*, 14 FCC Rcd at 19870 ¶ 9.

⁷⁴ In 2002, for example, the Commission’s Spectrum Policy Task Force conducted a comprehensive and systematic review of spectrum policy. See generally *Spectrum Policy Task Force, Report*, ET Docket No. 02-135 (rel. Nov. 2002) (*Spectrum Policy Task Force Report*). This report is available at <http://www.fcc.gov/sptf>.

⁷⁵ See *Reallocation and Service Rules for the 698-746 MHz Spectrum Band*, GN Docket No. 01-74, *Memorandum Opinion and Order*, 17 FCC Rcd 11613, 11629 ¶ 39 (2002); Amendment of Part 2 of the Commission’s Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems, ET Docket No. 00-258, *Third Report and Order, Third Notice of Proposed Rulemaking and Second Memorandum Opinion and Order*, 18 FCC Rcd 2223 (2003) (“AWS Third Report and Order”).

⁷⁶ See *70/80/90 GHz Report and Order* at ¶ 49.

productively under the flexible framework of our Part 27 rules, by creating a subpart for 37/42 GHz spectrum. Part 27 was established for the 2305-2320 MHz and 2345-2360 MHz bands,⁷⁷ and has since been applied to the Upper and Lower 700 MHz bands,⁷⁸ as well as to the Advanced Wireless Services.⁷⁹ Part 27 differs from rule parts applicable to more traditional services in that it does not attempt to provide a comprehensive set of licensing and operating rules for the spectrum. Instead, for each frequency band within its purview, Part 27 defines permissible uses and any limitations thereon, sets out technical limitations necessary to prevent cognizable interference, and specifies basic licensing requirements.⁸⁰ We generally seek comment on the advantages and disadvantages of extending our Part 27 framework to the 37/42 GHz bands or to portions of the bands.

29. In the alternative, commenters should address the possibility of a Part 101 framework where we would also propose to adopt a geographic area licensing scheme and permit mobile, point-to-point, and point-to-multipoint operations in the 37/42 GHz bands, for the same reasons that we permit them in the 39 GHz band.⁸¹ There, the Commission did not want to develop a regulatory framework that would hamper further growth and development of the nascent 39 GHz service.⁸² Moreover, there was no evidence in the record that point-to-point and point-to-multipoint operations are inherently incompatible in the same band or licensing area, if licenses were issued on the basis of geographic areas.⁸³ We inquire whether it would serve the public interest to afford 37/42 GHz licensees similar flexibility under Part 101 in the design of their systems to respond readily to consumer demand for their services, allowing the marketplace to dictate the best uses for this spectrum. We seek comment on the extent to which allowing point-to-multipoint operations could stimulate creative technology development and facilitate investment therein.⁸⁴ While technology to support mobile operations may not be available at present, permitting such flexibility could enable providers to modify their offerings quickly and efficiently to provide the services that consumers demand when technology makes it possible.⁸⁵ Thus, providers could be better positioned to respond quickly to the dictates of the marketplace.⁸⁶ Such flexibility under Part 101 could promote competition by increasing both the diversity of potential service offerings and the number of providers that can offer any service.⁸⁷ We seek comment on these issues.

30. If commenters disagree with our proposals to permit a licensee to use this spectrum for

⁷⁷ Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service (WCS), GN Docket No. 96-228, *Report and Order*, 12 FCC Rcd 10785 (1997) ("*Part 27 Report and Order*").

⁷⁸ See 47 C.F.R. § 27.5(b).

⁷⁹ See *AWS Third Report and Order*, *supra* note 75.

⁸⁰ Licensees of Part 27 spectrum must look to other parts of the Commission's rules for other applicable licensing and operating rules (to the extent they do not conflict with the specific provisions of Part 27), depending on the particular services they actually offer. See 47 C.F.R. § 27.3.

⁸¹ See *Report and Order and Second NPRM* at 18,613 ¶ 20.

⁸² *Id.*

⁸³ *Id.*

⁸⁴ See *Policy Statement*, 14 FCC Rcd at 19,870 ¶ 7.

⁸⁵ See *Report and Order and Second NPRM*, 12 FCC Rcd at 18,614-15 ¶¶ 21-25.

⁸⁶ *Id.*

⁸⁷ *Id.*

flexible use, we seek comment on what rule provisions should be adopted in light of the services that may be offered in the 37/42 GHz bands. Commenters should consider the extent to which, and under what conditions, allowing both point-to-point and point-to-multipoint operations in the 37/42 GHz bands would cause any more harmful interference than only allowing point-to-point operations, if proper coordination were done with both FS and FSS operations. Further, they should consider to what extent, if any, permitting point-to-multipoint use would impact investment in communications services and systems, or in technology development. Similarly, we seek comment on whether and to what extent we should permit mobile operations in the 37/42 GHz bands. As noted above,⁸⁸ we seek comment on whether or not such operations would be feasible if we were to adopt a 70/80/90 GHz-type licensing approach.⁸⁹

C. Licensing Rules

31. If we adopt a geographic-area licensing approach, we propose to apply to the 37/42 GHz bands the same licensing rules that pertain to the 39 GHz band, i.e., to grant area-wide licenses with renewal based upon substantial service. Accordingly, we propose the following rules related to eligibility, license term, performance requirements, spectrum aggregation, and technical requirements. We seek comment on these proposals, but we also invite comment on alternative requirements that might be more appropriate, particularly if we were to adopt a regulatory framework like the one we have adopted for the 70/80/90 GHz bands.

1. Eligibility

32. Background. In the *First NPRM and Order*, the Commission tentatively concluded that no eligibility criteria (such as demonstrating a need for multiple service points or transmission paths) were needed for the 37.0-38.6 GHz band, because the use of competitive bidding to resolve mutually exclusive applications would ferret out applicants who were financially unqualified or engaging in speculation.⁹⁰ In the *Report and Order and Second NPRM*, the Commission retained open eligibility for 39 GHz spectrum, rather than impose restrictions on incumbent local exchange carriers ("LECs") as a safeguard against potential anticompetitive abuses.⁹¹ The Commission also declined to impose eligibility restrictions in the *70/80/90 GHz Report and Order*.⁹²

33. Discussion. The use of eligibility restrictions can be an effective tool to ensure that spectrum does not become concentrated in the hands of any one licensee. In addressing the issue of whether to impose eligibility restrictions, we inquire whether open eligibility poses a significant likelihood of substantial competitive harm in specific markets, and, if so, whether eligibility restrictions are an effective way to address that harm.⁹³ An open eligibility approach would result in reliance on market forces to guide license assignment absent a compelling showing that regulatory intervention to exclude potential participants is necessary. Such an approach may be appropriate here because it best comports with our statutory guidance. When granting the Commission authority to auction spectrum licenses for wireless services, Congress

⁸⁸ Paragraph 30, *supra*.

⁸⁹ See *id.* at 18,603 ¶ 3, 18,616 ¶ 26.

⁹⁰ *First NPRM and Order*, 11 FCC Rcd at 4,957-56 ¶ 97.

⁹¹ *Report and Order and Second NPRM*, 12 FCC Rcd at 18,619-20 ¶¶ 32-33.

⁹² *70/80/90 GHz Report and Order*, ¶ 70.

⁹³ *Report and Order and Second NPRM*, 12 FCC Rcd at 18619 ¶ 32.

acknowledged our authority in Section 309(j)(3) "to [specify] eligibility and other characteristics of such licenses."⁹⁴ However, Congress specifically directed that we exercise that authority so as to "promot[e] . . . economic opportunity and competition."⁹⁵ Congress also emphasized this pro-competitive policy in Section 257, where it articulated a "national policy" in favor of "vigorous economic competition" and the elimination of barriers to market entry by a new generation of telecommunications providers.⁹⁶ This approach also would be consistent with our analysis in the *LMDS Second Report and Order*.⁹⁷ Finally, implementation of this approach would also be consistent with the Court's treatment of eligibility issues in *Cincinnati Bell*. In that decision, the Court looked to statistical data and general economic theory as support for predictive judgments by the Commission such as that eligibility restrictions are required.⁹⁸

34. In the 39 GHz proceeding, commenters generally supported the Commission's proposal to allow open eligibility.⁹⁹ However, two entities argued in favor of eligibility restrictions for incumbent LECs, in order to prevent these entities from obtaining all of the desirable channel blocks in a given market,¹⁰⁰ to prevent incumbent LECs from frustrating viable alternatives for deployment of competitive local telecommunications services¹⁰¹ and to ensure an opportunity for competitive local exchange carriers ("CLECs") to obtain licenses.¹⁰² The Commission determined that it was unlikely that substantial anticompetitive effects would result from LEC eligibility because an increase in LEC services other than those provided in local exchange markets, such as point-to-point backhaul and backbone transmission, would not diminish the generally competitive environment in which those services were then available.¹⁰³ Second, even presuming that 39 GHz licenses would enable effective provision of services that can compete with local exchange service, such as wireless local loop, the Commission determined that incumbent LECs should have little or no incentive to acquire those licenses with the anticompetitive intent

⁹⁴ 47 U.S.C. § 309(j)(3).

⁹⁵ *Id.*

⁹⁶ 47 U.S.C. § 257.

⁹⁷ Rulemaking To Amend Parts 1, 2, 21, and 25 of the Commission's Rules To Redesignate the 27.5-29.5 GHz Frequency Band, To Reallocate the 29.5-30.0 GHz Frequency Band, To Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, Petitions for Reconsideration of the Denial of Applications for Waiver of the Commission's Common Carrier Point-to-Point Microwave Radio Service Rules, CC Docket No. 92-297, Suite 12 Group Petition for Pioneer Preference, PP-22, *Second Report and Order*, *Order on Reconsideration*, and *Fifth Notice of Proposed Rulemaking*, FCC 97-82, 12 FCC Rcd 12545, 12616 ¶ 160 (1997) (*LMDS Second Report and Order*), proposing Subpart L of Part 101 of the Commission's Rules, 47 C.F.R. §§ 101.1001-1112; *aff'd*, *Melcher v. FCC*, 134 F.3d (C.A.D.C. 1998); Erratum, released Apr. 7, 1997 ("First Erratum"); Erratum, released May 1, 1997 (*Second Erratum*); *Order on Reconsideration*, CC Docket No. 92-297, 12 FCC Rcd 6424 (1997) ("First Reconsideration"). We believe it is likely that the 37/42 GHz bands will be used for the same kinds of services that are provided by LMDS operators, i.e., backhaul services for carriers and service to large or medium-sized business customers. Such services are generally exposed to a significant amount of competition.

⁹⁸ *Cincinnati Bell Tel. Co. v. FCC*, 69 F.3d 752, 760 (6th Cir. 1995) ("*Cincinnati Bell*").

⁹⁹ See, e.g., WinStar Comments at 36-37.

¹⁰⁰ Association for Local Telecommunications Services (ALTS) Comments at 2.

¹⁰¹ BizTel Comments at 21.

¹⁰² Association for Local Telecommunications Services (ALTS) Comments at 2.

¹⁰³ *Report and Order and Second NPRM*, 12 FCC Rcd at 18,619 ¶¶ 32-33.

of foreclosing entry by other firms and preserving market power.¹⁰⁴ The Commission found that an incumbent strategy of preserving expected future profits by buying 39 GHz licenses could not succeed because of the numerous other sources of actual and potential competition.¹⁰⁵ As noted *supra* in paragraph 10, we have concluded that it would be appropriate to adopt parallel service rules for the 37/42 GHz and 39 GHz bands because of the proximity, similarity in anticipated uses and propagation characteristics of the bands, if we decide to pursue a geographic-area licensing approach for the 37/42 GHz bands. Given the similarities between the two bands, we believe that the same eligibility criteria should apply in both bands. For the same reasons why we concluded that open eligibility was appropriate for the 39 GHz band, we tentatively conclude that open eligibility is also appropriate for the 37/42 GHz spectrum. We seek comment on the extent to which the same factors that apply to the 39 GHz band might also apply to 37/42 GHz spectrum, and whether or not open eligibility is appropriate for the 37/42 GHz spectrum.

2. Performance Requirements and Renewal Expectancy

35. Background. In the *First NPRM and Order*, the Commission sought comment on appropriate build-out requirements for geographic licensees.¹⁰⁶ At that time, the Commission established the substantial service requirement for 39 GHz licensees, to assess meaningful service through a measure that was not based on population or geographic metrics.¹⁰⁷ We defined substantial service as "a service that is sound, favorable, and substantially above a level of mediocre service which might minimally warrant renewal."¹⁰⁸ The Commission established substantial service for circumstances in which more flexible performance requirements, rather than fixed benchmarks, would more likely result in the efficient use of spectrum and the provision of service to rural, remote, and insular areas.¹⁰⁹ The Commission did not adopt a more specific standard because, given the variety of services that 39 GHz licensees could provide, an inflexible performance requirement might impair innovation and unnecessarily limit the types of service offerings.¹¹⁰ The Commission sought to avoid this pitfall by permitting licensees to make a showing tailored to their particular type of operation.¹¹¹ In addition, the Commission provided a "safe harbor" example of a substantial service showing as "four links per million population within a service area for a point-to-point licensee."¹¹² The Commission also found that this approach satisfied the dictates of Section

¹⁰⁴ *Id.*

¹⁰⁵ For example, sources of actual or potential competition include Internet access and cable headend applications. *Id.* at 18,607 ¶ 5.

¹⁰⁶ *First NPRM and Order*, 11 FCC Rcd at 4,976 ¶ 98.

¹⁰⁷ *Report and Order and Second NPRM*, 12 FCC Rcd at 18,622-26 ¶¶ 39-50.

¹⁰⁸ 47 C.F.R. § 22.940(a)(1)(i). See also *LMDS Second Report and Order*, 12 FCC Rcd at 12,660 ¶ 269; Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service, GN Docket No. 96-228, *Report and Order*, 12 FCC Rcd 10,785, 10,843-44 (1997) ("*WCS Report and Order*"); Amendment of Part 95 of the Commission's Rules to Provide Regulatory Flexibility in the 218-219 MHz Service, WT Docket No. 98-169, *Report and Order and Memorandum Opinion and Order*, 15 FCC Rcd 1,497, 1,537-38 (1999) ("*218-219 MHz Service Report and Order*").

¹⁰⁹ See, e.g., *WCS Report and Order*, 12 FCC Rcd at 10,843 ¶¶ 111-112; Amendment of the Commission's Rules to Establish New Personal Communications Services, *Memorandum and Order*, GEN Docket No. 90-314, 9 FCC Rcd 4,957, 5,018-20 ¶¶ 154-58 (1994) ("*PCS MO&O*").

¹¹⁰ *Report and Order and Second NPRM*, 12 FCC Rcd at 18,623 ¶ 42.

¹¹¹ *Id.*

¹¹² *Report and Order and Second NPRM*, 12 FCC Rcd at 18,624 ¶ 46. We note that, although the Commission did not use the specific term of "safe harbor" in the 39 GHz band context, we believe the Commission intended for this (continued....)

309(j)(4)(B) of the Communications Act,¹¹³ which requires us to propose effective safeguards and performance requirements in connection with any competitive bidding system, because the licensee's willingness to pay market value for its license at auction demonstrates its willingness to put the license to its best use.¹¹⁴ In the *70/80/90 GHz Report and Order*, the Commission did not adopt any performance requirements other than its requirement that a licensee construct a link within 12 months after registering it and operate at a bit rate equal to or greater than its bandwidth, with any unconstructed link to be removed from the database in accordance with Section 101.65.¹¹⁵

36. Neither the Part 21 rules nor the Part 101 rules directly provided for a renewal expectancy at the time of license expiration. However, in 1997, in the *Report and Order and Second NPRM*, the Commission determined that, in order to promote flexibility in system design and market development, it would combine the performance standards required for build-out with the requirements for renewal expectancy into one showing of substantial service at the time of license renewal, in accordance with Section 101.17(a).¹¹⁶

37. In the *70/80/90 GHz Report and Order*, the Commission followed a different approach consistent with its link-by-link registration framework. It adopted a requirement that a licensee construct a link within 12 months after registering it with a third-party database manager.¹¹⁷ The database manager is required to withdraw unconstructed links from the database after 12 months, and forfeiture and termination of a link is handled in accordance with Section 101.65 of our rules.¹¹⁸

38. Discussion. Based on the record thus far in this proceeding, we are inclined to believe that the substantial service standard would serve the public interest if we decide to license the 37/42 GHz bands by EAs.¹¹⁹ We propose to conduct performance reviews at the completion of licensees' ten-year license terms, as we do with respect to the 39 GHz band.¹²⁰ However, we also seek comment on the alternative possibility of conducting such reviews five years into the license period and ten years into the license period, as we do with respect to Multichannel Video Distribution and Data Services.¹²¹ A link-by-link

(...continued from previous page)

example to serve, in fact, as a "safe harbor." This determination is consistent with similar examples the Commission has provided in other services. See Amendments to Parts 1, 2, 87, and 101 of the Commission's Rules to License Fixed Services at 24 GHz, WT Docket No. 99-327, *Report and Order*, 15 FCC Rcd 16,934, 16,951-52 ¶ 38 (2000) (*24 GHz Report and Order*); *218-219 MHz Service Report and Order*, 15 FCC Rcd at 1,537-38; Amendment of the Commission's Rules Concerning Maritime Communications, PR Docket No. 92-257, *Third Report and Order and Memorandum Opinion and Order*, 13 FCC Rcd 19,853, 19,870 (1998); *LMDS Second Report and Order*, 12 FCC Rcd at 12,660-61; *WCS Report and Order*, 12 FCC Rcd at 10,843-44 ¶ 113.

¹¹³ 47 U.S.C. § 309(j)(4)(B).

¹¹⁴ *Report and Order and Second NPRM*, 12 FCC Rcd at 18,623 ¶ 41.

¹¹⁵ *Id.* at ¶ 80; 47 C.F.R. § 101.147(z)(3).

¹¹⁶ See *Report and Order and Second NPRM*, 12 FCC Rcd at 18,625 ¶ 47.

¹¹⁷ *70/80/90 GHz Report and Order* at ¶ 80.

¹¹⁸ *Id.*, citing 47 C.F.R. § 101.65.

¹¹⁹ See the comments cited at note 88 of the *Report and Order and Second NPRM*. The commenters supported the use of the substantial service standard.

¹²⁰ See *supra* note 116 and accompanying discussion.

¹²¹ See 47 C.F.R. § 101.1413 (West 2004 rev.).

construction deadline would probably be more appropriate if we adopt a 70/80/90 GHz-type regulatory framework. We propose to adopt a renewal expectancy if the licensee meets whatever performance standard we adopt. This would be consistent with the approach that we have taken in other services.¹²²

39. In addition to being consistent with the approach used in other wireless services, we believe that the substantial service standard is sufficiently flexible to foster expeditious development and deployment of diverse systems and ultimately would create competition among the service providers if the band is licensed by geographic areas. Given the similarities in propagation characteristics and proposed permitted uses of the 37/42 GHz and 39 GHz bands, we believe that it would be appropriate to apply the same "safe harbors" to both bands. We therefore propose the same safe harbor example here that we presented in the 39 GHz proceeding. Thus, a safe harbor for a 37/42 GHz EA licensee might consist of a showing of four links per million population within a service area.¹²³ We invite recommendations for alternative or additional safe harbors that take into account other variations in local conditions, such as population density. For each such recommendation, we invite commenters to indicate whether the safe harbor involved should provide more than a rebuttable presumption of renewal. In order to determine whether an EA licensee has provided substantial service at the end of the license term, we propose to consider factors such as: i) whether the licensee's operations serve niche markets or focus on serving populations outside of areas served by other licensees; ii) whether the licensee's operations serve populations with limited access to telecommunications services; and iii) a demonstration of service to a significant portion of the population or land area of the licensed area.¹²⁴ We emphasize that this list need not be exhaustive and that licensees could be permitted to satisfy the substantial service requirement in other ways. Hence, we propose to review licensees' showings on a case-by-case basis. If a licensee fails to meet the performance requirement, the subject license would not be renewed. We seek comment on these proposals and on alternative performance requirements that might be more appropriate if we adopt a link-by-link licensing approach, such as the 12-month construction requirement adopted in the 70/80/90 GHz Report and Order.¹²⁵

40. We propose that, in order to claim a renewal expectancy under the geographic licensing framework, the geographic area licensee be required to provide the Commission with: 1) a description of its current service in terms of geographic coverage and population served or links installed and a description of how the service complies with the substantial service requirement; and 2) copies of any Commission Orders finding the licensee to have violated the Communications Act or any Commission rule or policy, and a list of any pending proceedings that relate to any matter described by the requirements for the renewal expectancy. We believe that these requirements would be in the public interest because these showings would ensure that the licensee operated its facilities in compliance with the Commission's rules and has the requisite qualifications to be a Commission licensee.

41. If we adopt a link-by-link registration approach, we propose to follow the approach adopted in the 70/80/90 GHz Report and Order, i.e., that other licensed entities would be permitted to register and operate links in the same locations after the earlier entry is removed from the database. We propose that licensees' links be removed from the database using criteria like those that Section 101.65 applies to site licensees, i.e., the link registration would be removed from the database (i) immediately if the licensee provided notice that it was discontinuing service permanently on the link, (ii) upon the voluntary removal

¹²² See, e.g., *Report and Order and Second NPRM*, 12 FCC Rcd at 18,623.

¹²³ See *id.* at 18,625 ¶ 46.

¹²⁴ See *LMDS Second Report and Order*, 12 FCC Rcd at 12,660 ¶ 270; *WCS Report and Order*, 12 FCC Rcd at 10,843-44; *218-219 MHz Service Report and Order*, 15 FCC Rcd at 1,538 ¶ 70.

¹²⁵ See *70/80/90 GHz Report and Order* at ¶ 80.

or alteration of the facilities, so as to render the station not operational for a period of 30 days or more, or (iii) upon the station's discontinuing service for a period of one year.¹²⁶ However, we propose that the licensee be allowed to retain its nationwide non-exclusive license whether or not one, more, or even all of its links are removed from the database. We seek comment on these proposals.

3. License Term

42. *Background.* Historically, 39 GHz licensees authorized to provide service before August 1, 1996, received a five-year, fixed license term,¹²⁷ and licensees authorized after August 1, 1996, received a ten-year, fixed license term.¹²⁸ Moreover, the Commission eliminated a requirement for 39 GHz licensees to file for renewal eighteen months before the license expiration date¹²⁹ and adopted a requirement for 39 GHz licensees to file for renewal of station authorizations no later than the license expiration date and no earlier than ninety days before the expiration date.¹³⁰ In the *70/80/90 GHz Report and Order*, the Commission adopted a ten-year license term.¹³¹

43. *Discussion.* Those who commented on the issue of license term favored a ten-year license period for 39 GHz licensees.¹³² Moreover, we have made significant efforts to establish consistency and promote regulatory parity with respect to policies governing similar wireless services.¹³³ In other contexts, we have recognized the advantages of a ten-year license term.¹³⁴ Based on the record in this proceeding, we propose to adopt a ten-year license term.

4. Partitioning, Disaggregation, and Aggregation

44. *Background.* In the *First NPRM and Order*, the Commission sought comment on partitioning for rural telephone companies ("rural telco"), and on whether to broaden the scope of partitioning to include all applicants.¹³⁵ Most commenters supported permitting partitioning for rural telcos, as well as partitioning and disaggregation in the band generally.¹³⁶ In considering this issue in the *Report and Order*, the Commission concluded that it should make partitioning and disaggregation available to all 39 GHz licensees, because these capabilities would promote flexibility both in system design and service, and encourage new entrants into the market by creating smaller, less capital-intensive service areas that may be

¹²⁶ See 47 C.F.R. § 101.65.

¹²⁷ Former 47 C.F.R. § 21.45.

¹²⁸ 47 C.F.R. § 101.67.

¹²⁹ Former 47 C.F.R. § 101.15.

¹³⁰ 47 C.F.R. § 1.949.

¹³¹ *70/80/90 GHz Report and Order* at ¶ 77.

¹³² See, e.g., WinStar Comments at 36; Commco Comments at 11; GEC Comments at 6.

¹³³ See, e.g., *LMDs Second Report and Order*, 12 FCC Rcd at 12,656 ¶ 59; *Report and Order and Second NPRM*, 12 FCC Rcd at 18,620-21 ¶ 36.

¹³⁴ See, e.g., *Report and Order and Second NPRM*, 12 FCC Rcd at 18,623.

¹³⁵ See *First NPRM and Order*, 11 FCC Rcd at 4,972-73 ¶ 89-90.

¹³⁶ AT&T Wireless Comments at 10; DCR Comments at 2-6, 8; GTE Comments at 5; Pacific Comments at 6; U S West Reply at 6.

more accessible to small entities.¹³⁷

45. In the *70/80/90 GHz Report and Order*, the Commission noted that the use of partitioning and disaggregation is pertinent only in geographic licensing settings, where the licensee has exclusive use of a particular area. It determined that its decision to authorize the 70/80/90 GHz bands on the basis of nationwide non-exclusive licensing obviated the need for partitioning and disaggregation.¹³⁸

46. In the *First NPRM and Order*, the Commission sought comment on whether to adopt a limit on aggregation of channel blocks in the combined 37.0-38.6 GHz and 39 GHz bands within a single licensing area, in order to ensure that there are an adequate number of licenses available to meet the needs of broadband PCS licensees, as well as the needs of other competitors in the wireless marketplace.¹³⁹ Commenters generally opposed a spectrum aggregation limit due to the potential for multiple providers utilizing a variety of wireless services.¹⁴⁰ In the *Report and Order and Second NPRM*, the Commission decided against adopting a spectrum aggregation limit for the 39 GHz band.¹⁴¹ The Commission reasoned that 39 GHz licensees participate in a number of broad markets consisting of a host of short-range fixed communications provided by many operators who employ a range of different, but substitutable technologies both radio and wire. The Commission did not see a need to guarantee a particular number of 39 GHz competitors to create competition within the 39 GHz band.¹⁴² Moreover, the Commission noted that there was no evidence that the 1400 megahertz of spectrum in the 39 GHz band was particularly important for the creation of competition in the two markets where market power still exists – local telecommunications services and multi-channel video program delivery.¹⁴³ The Commission concluded that an aggregation limit was not needed in order to foster competition in these two markets.¹⁴⁴ The Commission also concluded that permitting aggregation of channels might benefit the public through efficiencies and flexibility in the types of services this would allow, and might provide for lower costs or greater ability to compete with established service providers with large transmission capacity.¹⁴⁵

47. Discussion. If we adopt a geographic area licensing framework, we propose to permit 37/42 GHz licensees to partition and disaggregate spectrum freely within those bands. We inquire to what extent we should require licensees to preserve any channel pairs that we establish.¹⁴⁶ There will be no need for partitioning and disaggregation if we adopt a link-by-link registration approach.

48. For the geographic area approach, we propose to allow partitioning of any licensee-defined

¹³⁷ *Report and Order and Second NPRM*, 12 FCC Rcd at 18,635-36 ¶¶ 71-73; see also *Memorandum Opinion and Order*, 14 FCC Rcd at 12,460-61 ¶¶ 61-63.

¹³⁸ *70/80/90 GHz Report and Order* at ¶ 87.

¹³⁹ *First NPRM and Order*, 11 FCC Rcd at 4983 ¶ 112.

¹⁴⁰ See, e.g., ART Comments at 27-38; Biztel Comments at 3, 11-14; Columbia Comments at 2-3; Milliwave Comments at 31-32.

¹⁴¹ *Report and Order and Second NPRM*, 12 FCC Rcd at 18,626 ¶ 52.

¹⁴² *Id.* at 18,626-27 ¶¶ 52-55.

¹⁴³ *Id.*

¹⁴⁴ *Id.*

¹⁴⁵ *Id.* at 18,627 ¶¶ 55.

¹⁴⁶ See paras. 47-68, *infra*.

service area, disaggregation of any amount of spectrum,¹⁴⁷ and combined partitioning and disaggregation. We propose to allow the 37/42 GHz band licensees to partition and/or disaggregate in either of two ways: (1) entities could form bidding consortia to participate in competitive bidding, and then partition or disaggregate the licenses won among consortia participants after the license grant; or (2) entities could acquire partitioned or disaggregated 37/42 GHz licenses from other licensees through private negotiation and agreement.

49. We consider partitioning and disaggregation effectively to be types of assignments, which would, therefore, require prior approval by the Commission. We would require a licensee planning to partition or disaggregate its license to file an assignment application, along with the partitionee and/or disaggregatee, to designate the specific areas and frequencies. For geographic area licenses in other bands, the Commission does not require individual licenses for each facility. After we grant either the original license or assignments for partitioning and/or disaggregation, and provided the licensees comply with all other rules, licensees may build out anywhere within their defined service areas without further authority from the Commission. Entities that receive partitioned or disaggregated licenses would hold their licenses for the remainder of the original licensee's license term, and would qualify for renewal expectancy if they provide substantial service and comply with the Commission's rules and policies and the Communications Act. In authorizing partitioning and disaggregation, we propose to follow these existing license assignment procedures.¹⁴⁸ We would permit parties with partitioning agreements to choose between two options for satisfying the performance requirements: (a) the parties may agree to meet the performance requirements for their respective portions of the service area,¹⁴⁹ or (b) the original licensee may certify that it has met or will meet the performance requirements for the entire market.¹⁵⁰ We believe that these requirements would prevent licensees from using partitioning and disaggregation to circumvent our rules governing performance requirements. Our Part 1 unjust enrichment provisions would govern partitioning and disaggregation arrangements involving licenses authorized to small businesses afforded a bidding credit, including those that later elect to partition or disaggregate their licenses to an entity that is not eligible for the same bidding credit.¹⁵¹

50. We also propose that 37/42 GHz licensees be allowed to aggregate their spectrum in order to provide greater flexibility of service. In some services, the Commission has permitted aggregation by implication, by not specifically prohibiting it. In other services, the Commission has adopted a rule expressly permitting aggregation.¹⁵² We believe that, in the interest of regulatory certainty, the latter is the better approach. Therefore, we propose to adopt a rule specifically permitting spectrum aggregation if we

¹⁴⁷ We propose to require licensees to maintain any channel pairs that we might establish for the 37/42 GHz bands when the licensees choose to disaggregate any of their licenses in this band, as we do for 39 GHz licensees. See *Report and Order and Second NPRM*, 12 FCC Rcd at 18,635 ¶ 72, and as herein proposed for application to the 37/42 GHz bands and codification at 47 C.F.R. § 101.149(e). We have not decided whether to adopt a channel plan. See ¶¶ 57-68, *infra*. We reserve discretion, in the event that we propose a channel plan for the 37/42 GHz bands, to require disaggregation of that spectrum by channel pairs.

¹⁴⁸ See 47 C.F.R. § 1.948.

¹⁴⁹ If either licensee failed to meet its substantial showing requirement, only the non-performing operator's license would not be renewed.

¹⁵⁰ If the original licensee fails to meet the substantial service standard for the entire market, the subject license would be cancelled automatically and would revert to the Commission. See 47 C.F.R. §§ 1.955(a)(2), 1.948, 101.56.

¹⁵¹ See Amendment of Part 1 of the Commission's Rules – Competitive Bidding, *Third Report and Order and Second Further Notice of Proposed Rule Making*, WT Docket No. 97-82, 13 FCC Rcd 374, 405 (1997); 47 C.F.R. § 1.2111.

¹⁵² See, e.g., 47 C.F.R. § 101.535(b)(1).

decide to adopt a geographic area licensing structure.

51. As noted previously, commenters opposed a spectrum aggregation limit. Thus, we incline toward the view that the same reasoning that the Commission used to permit unlimited aggregation in the 39 GHz band also should apply to the 37/42 GHz bands. Accordingly, we propose not to limit aggregation of channel blocks in the 37/42 GHz bands, or in the combined 37/42 GHz and 39 GHz bands. We seek comment on all of these proposals.

5. Regulatory Status

52. In the *First NPRM and Order*, the Commission requested comment on whether to allow a new licensee to use the spectrum for private use and also to provide a common carrier service.¹⁵³ We did not receive any comments on this issue. The Commission concluded in the *Report and Order and Second NPRM* that it should permit licensees in the 39 GHz band to serve either as a common carrier or as a private licensee.¹⁵⁴ It reasoned that this approach would promote economic efficiencies by reducing construction and operating costs associated with having to provide separate facilities.¹⁵⁵ We tentatively conclude that the same benefits could apply to the 37/42 GHz bands, and, accordingly, we propose the same approach here. We propose to allow those licensees who select common carrier regulatory status to provide private service, and those licensees who select private service regulatory status to share the use of their facilities on a non-profit basis or offer service on a for-profit, private carrier basis¹⁵⁶ subject to Section 101.135 of our rules.¹⁵⁷ We also propose to allow licensees who select private regulatory status to lease excess capacity to common carriers in accordance with Part 101.603 of our rules.¹⁵⁸ Licensees would elect the status of the services they wish to offer and would be governed by the rules applicable to their status.¹⁵⁹ The Commission tentatively concludes that this approach would promote economic efficiencies by reducing construction and operating costs associated with having to provide separate facilities.¹⁶⁰ We seek comment on these proposals.

6. Foreign Ownership Restrictions

53. Background. Foreign ownership and citizenship requirements for 37/42 GHz band licensees are set out in Sections 310(a) and 310(b) of the Communications Act, which restrict the issuance of licenses to certain applicants.¹⁶¹ Section 310(a) prohibits any foreign government or representative from holding a station license. Section 310(b) prohibits certain defined foreign ownership interests in common

¹⁵³ *First NPRM and Order*, 11 FCC Rcd at 4,977 ¶ 99.

¹⁵⁴ *Report and Order and Second NPRM*, 12 FCC Rcd at 18,636 ¶ 76.

¹⁵⁵ *Id.*

¹⁵⁶ *Id.*

¹⁵⁷ 47 C.F.R. § 101.135.

¹⁵⁸ 47 C.F.R. § 101.603; see Amendment of Part 101 of the Commission's Rules to Streamline Processing of Microwave Applications in the Wireless Telecommunications Services, *Report and Order*, WT Docket No. 00-19, 17 FCC Rcd 15,040, 15,048 ¶ 12 (2002).

¹⁵⁹ *Report and Order and Second NPRM*, 12 FCC Rcd at 18,636 ¶ 76.

¹⁶⁰ *Id.*

¹⁶¹ See 47 U.S.C. §§ 310(a), (b).

carrier licenses. Section 101.7(a) of the Commission's rules implements Section 310 of the Act¹⁶² and prohibits the granting of any license to a foreign government or its representative.¹⁶³ Section 101.7(b) prohibits the grant of a common carrier license to an applicant who fails any of the four citizenship requirements listed therein.¹⁶⁴

54. Discussion. We propose to apply Section 101.7 of our rules to the 37/42 GHz band. As the Commission has done in the case of Multipoint Distribution Service ("MDS"), satellite services, Local Multipoint Distribution Service ("LMDS") and the 24 GHz proceeding, we would require an applicant electing non-common carrier status also to submit the same information that common carrier applicants must submit in order to address the alien ownership restrictions under Section 310(b) of the Act.¹⁶⁵ Because we propose that 37/42 GHz band licensees be permitted to offer both common and non-common carrier services, we believe such a requirement will be necessary to enable us to ascertain compliance of all 37/42 GHz band licensees with the alien ownership restrictions set out in Section 101.7 of our rules. This information could be used whenever the licensee changes to common carrier status without imposing an additional filing requirement when the licensee makes the change.¹⁶⁶ We note, moreover, that we would not disqualify an applicant requesting authorization exclusively to provide non-common carrier service from obtaining a 37/42 GHz band license solely on the basis that its citizenship information would disqualify it from receiving a common carrier license.

55. Accordingly, we propose to require common carrier and non-common carrier licensees in the 37/42 GHz bands to provide the alien ownership information requested by FCC Form 601. We also propose to require common carriers and non-common carriers to amend their FCC Form 602 to reflect any changes in foreign ownership information. We seek comment on these proposals.

D. Technical Rules

56. In general, we believe that the technical rules that apply to the 39 GHz band would be appropriate for the 37/42 GHz bands if we decide to adopt a geographic area licensing approach. It would be necessary to develop a different set of standards if we decide to follow the 70/80/90 GHz model. Because the physical characteristics of the 70/80/90 GHz and 37/42 GHz bands differ significantly from each other, it would not be appropriate to apply the 70/80/90 GHz technical rules to the 37/42 GHz bands.¹⁶⁷ We seek comment on these general conclusions, and specific advice with respect to technical

¹⁶² *NPRM*, 14 FCC Rcd at 19,277 ¶¶ 23-24.

¹⁶³ 47 C.F.R. § 101.7(a).

¹⁶⁴ 47 C.F.R. § 101.7(b).

¹⁶⁵ See Revisions to Part 21 of the Commission's Rules regarding the Multipoint Distribution Service, *Report and Order*, CC Docket No. 86-179, 2 FCC Rcd at 4,253 ¶ 16 ("MDS Report and Order"); Streamlining the Commission's Rules and Regulations for Satellite Application and Licensing Procedures, IB Docket No. 95-117, *Report and Order*, 11 FCC Rcd 21,581, 21599 ¶ 43 (1996); *LMDS Second Report and Order*, 12 FCC Rcd at 12,651 ¶ 243; *24 GHz Report and Order*, 15 FCC Rcd at 16,957-58 ¶¶ 52-58.

¹⁶⁶ We note, however, that to the extent that a licensee's decision to change its regulatory status raises issues with respect to that licensee exceeding the benchmark contained in 47 C.F.R. § 310(b)(4), the rules require the Commission's prior approval before the licensee can make this change. Rules and Policies on Foreign Participation in the U.S. Telecommunications Market and Market Entry and Regulation of Foreign-Affiliated Entities, *Report and Order and Order on Reconsideration*, IB Docket Nos. 97-142 and 95-22, 12 FCC Rcd 23,891, 23,940-41 ¶¶ 111-118 (1997).

¹⁶⁷ See *70/80/90 GHz Report and Order* at ¶¶ 90-99 (adopting rules for interference protection criteria, frequency tolerance, restrictions on total radiated power, antenna directionality, and RF safety).

rules that would be appropriate if we adopt the 70/80/90 GHz model.

57. For the 39 GHz band, the Commission declined to apply a frequency tolerance standard that determines how accurately a transmitter must stay on its center frequency. It concluded that such a standard was unnecessary in light of the other interference safeguards in our rules, and that it would place detrimental limitations on the development of 39 GHz service.¹⁶⁸ We propose not to adopt a frequency tolerance standard for the 37/42 GHz bands if we adopt a geographic area licensing framework, based on the same reasoning that we followed when establishing the 39 GHz rules. Moreover, we believe that the existing out-of-band emission requirements contained in Section 101.111 of our rules would also be sufficient to prevent harmful interference to licensees in adjacent areas and thus further obviate the need for a frequency tolerance standard in the 37/42 GHz bands.¹⁶⁹ That emission rule requires that the frequencies at the outer edges of an assigned channel or the edges of aggregated channels must be significantly reduced such that interference to adjacent channels is unlikely.

58. With respect to setting a spectrum efficiency standard, many commenters argued that there is no reason to impose spectrum efficiency rules,¹⁷⁰ but others supported a minimum efficiency test.¹⁷¹ The Commission concluded that setting a mandatory spectrum efficiency standard in the 39 GHz band could harm the development and growth of the 39 GHz service by imposing costs in excess of any benefit, particularly given that such a rule would require updating as the technology advanced.¹⁷² The Commission also noted that as a general matter, whenever spectrum is exclusively assigned and licensees cannot expect to obtain additional spectrum at a price significantly below its market value, a mandatory efficiency standard is unnecessary and licensees can be expected to invest voluntarily in efficient technology up to the optimal economic level, so a mandatory standard either would have no effect (if it is at or below the voluntary level) or would impose unjustified costs that exceed any resulting gain.¹⁷³ We tentatively conclude, for the same reasons, that a spectrum efficiency standard in the 37/42 GHz bands would be unnecessary if we adopt a geographic area licensing model, and therefore, do not propose to adopt such a standard under that approach. However, we invite comment on any spectrum efficiency standards that might be appropriate if we adopt a 70/80/80 GHz-style framework or other regulatory structures.

59. In the *Report and Order and Second NPRM*, the Commission proposed to permit licensees to use various types of antennas in the 39 GHz band.¹⁷⁴ The Commission had proposed restrictions on antenna use in the *First NPRM and Order*,¹⁷⁵ but commenters generally averred that requiring licensees to

¹⁶⁸ *Id.* at 18,629 ¶ 59-60.

¹⁶⁹ *Id.* at 18,631 ¶ 63.

¹⁷⁰ WinStar Comments at 57; ART Comments at 20; Columbia Comments at 16; Commco Comments at 11.

¹⁷¹ For example, INNOVA Corporation ("INNOVA") supports the Commission's minimum digital efficiency of 1 bps/Hz for all those channel blocks which is available for use for broadband PCS or cellular services. INNOVA Comments at 4. Digital Microwave Corporation (DMC) avers that the spectrum efficiency standard set out for microwave transmitters employing digital modulation techniques in the 17.7-19.7 GHz band is preferable and suggests that we extend this standard to the 37 GHz band channels. DMC Comments at 2-3.

¹⁷² *Report and Order and Second NPRM*, 12 FCC Rcd at 18,629 ¶ 60.

¹⁷³ *See id.* at 18,630 ¶ 61.

¹⁷⁴ *See Report and Order and Second NPRM*, 12 FCC Rcd at 18,631-32 ¶ 65; *Memorandum Opinion and Order*, 14 FCC Rcd at 12,458 ¶¶ 55-56 (The Commission clarified the extent of this flexibility).

¹⁷⁵ *First NPRM and Order*, 11 FCC Rcd at 4,987 ¶ 119.

use only Category A antennas is too restrictive.¹⁷⁶ Thus, the Commission concluded that 39 GHz licensees should have the flexibility to employ antennas other than Category A types, because parties were contemplating a variety of system configurations that would require different types of antennas, characteristics of which are incompatible with the Category A standards.¹⁷⁷ The Commission provided that, should the use of an antenna other than a Category A model become the source of an interference problem, it would require that the licensee immediately resolve such interference by replacing the antenna with a Category A model or one with better performance characteristics.¹⁷⁸ Also in the *First NPRM and Order*, the Commission decided to propose a maximum equivalent isotropically radiated power ("EIRP") of +55 dBW for the 39 GHz band.¹⁷⁹ Commenters generally supported this proposal.¹⁸⁰ The uses of the 39 GHz and 37/42 GHz bands would probably be similar if we issue EA-wide licenses and allow point-to-multipoint operations, which often require antennas with wide patterns. We tentatively conclude that the same flexibility would be appropriate for the 37/42 GHz bands if we issue geographic area licenses. Therefore, we propose a maximum EIRP of +55 dBW for the 37 GHz band if we issue exclusive EA licenses. We seek comment on this proposal and recommendations for alternative approaches, especially with respect to rules that would be appropriate if we adopt a 70/80/90 GHz-style approach.¹⁸¹

E. Band Plan

60. As noted above, we believe that the service rules for the 37/42 GHz bands generally should conform to the rules for the 39 GHz band if we adopt geographic licensing, given the similarity in anticipated uses and propagation characteristics. With regard to some matters, however, differences in spectrum allocations¹⁸² and developments subsequent to the adoption of the 39 GHz rules persuade us to propose different rules and procedures, on which we now seek comment.

61. In the *First NPRM and Order*, the Commission proposed dividing the 37.0-38.6 GHz band into fourteen 50 megahertz paired channels (a total of 1400 megahertz with a 700 megahertz separation between the transmit and receive frequencies) and four 50 MHz unpaired channels (a total of 200 megahertz), with licensees having the discretion to disaggregate their channel blocks as they deem appropriate.¹⁸³ The Commission proposed to place the unpaired channels at the upper end of the 37.0-38.6 GHz band, with the paired channels beginning from the lower end of the band.¹⁸⁴ Most commenters

¹⁷⁶ TIA Equipment Comments at 26; BizTel Comments at 40-43; INNOVA Comments at 3-5; WinStar Comments at 57-63.

¹⁷⁷ *Report and Order and Second NPRM*, 12 FCC Rcd at 18,631-32 ¶ 65; see also *Memorandum Opinion and Order*, 14 FCC Rcd at 12,458 ¶ 56. Category A and B antennas are defined in, 47 C.F.R. § 101.115(c). Generally, Category A antennas are larger, more expensive, and have higher gains and narrower beamwidths than Category B antennas.

¹⁷⁸ *Report and Order and Second NPRM*, 12 FCC Rcd at 18,632 ¶ 66.

¹⁷⁹ *First NPRM and Order*, 11 FCC Rcd at 4,984 ¶ 115.

¹⁸⁰ See, e.g., ALTS Comments at 2; AT&T Wireless Comments at 9; Columbia Comments at 12-15; Microwave Partners Comments at 11; Milliwave Comments at 23-25; WinStar Comments at 57-63.

¹⁸¹ As noted in ¶ 24, *supra*, the Commission adopted technical rules requiring tightly focused "pencil-beam" transmissions in the 70/80/90 GHz bands.

¹⁸² See 36-51 GHz *Second R&O* sections on designation changes and allocation changes.

¹⁸³ *First NPRM and Order*, 11 FCC Rcd at 4,940 ¶ 19. The Commission also proposed to allow licensees to subdivide (and retain the use of) channels in their discretion. *Id.* at ¶ 20.

¹⁸⁴ See Appendix B, Proposed Rules, § 101.147, Option 2.

supported this placement. The Commission tentatively found that the 50 megahertz channel plan would provide for efficient and effective use of the band for point-to-point operations by a variety of potential broadband users, e.g., PCS, cellular, and other commercial and private mobile radio operations.¹⁸⁵ The Commission based this conclusion, in part, on the commonality of that channel plan with the channel plan for the 39 GHz band, which would permit manufacturers to provide lower cost equipment quickly for both bands.¹⁸⁶ The majority of commenters supported this plan.¹⁸⁷

62. Since the Commission began this proceeding, the allocation for the 37/42 GHz band has evolved.¹⁸⁸ For instance, the Commission recently added an FSS allocation to the 37.5-37.6 GHz band but applied specific PFD limits to FSS operations in the entire 37.5-40.0 GHz band, to protect terrestrial FS and other licensees, and required FSS operators to coordinate with Space Research Service ("SRS") systems in the 37-38 GHz band.¹⁸⁹ Moreover, the Commission adopted criteria to protect the Goldstone, California SRS facility from FSS downlink transmissions.¹⁹⁰ In the "36-51 Second R&O," we stated that we would seek comment in this proceeding on methods to mitigate the potential interference that may be caused by commercial fixed and mobile stations operating near the Goldstone SRS facility.¹⁹¹ We also stated that we would seek comment on whether to adopt a footnote to the Table of Allocations modeled after Footnote US311, which addresses circumstances similar to this situation. Footnote US311 establishes an 80 km (50 mile) radius around the Goldstone SRS facility in which the Commission endeavors to avoid the assignment of frequencies in the 1350-1400 MHz and 4950-4990 MHz bands to stations operating in the fixed and mobile services.¹⁹² If we do adopt a footnote to the Table of Allocations, we propose to place this requirement in Section 101.103 of our rules, as well. We seek comment on this coordination method.¹⁹³

63. The Commission received a letter from NTIA concerning this proceeding.¹⁹⁴ In its letter, NTIA indicates that the frequency bands 37.0-37.5 GHz and 40.0-40.5 GHz were identified in the *Space Exploration Initiative of 1989* for use by space research systems to be implemented in support of US goals to provide a permanent manned presence in Earth orbit (on or near the moon) and to initiate manned

¹⁸⁵ *First NPRM and Order*, 11 FCC Rcd at 4,940 ¶ 19.

¹⁸⁶ *Id.*

¹⁸⁷ See, e.g., ART Comments at 45-47; Altron Comments at 2-3; AT&T Wireless Comments at 3-4; DMC Comments at 2; GEC Comments at 5-6; Milliwave Comments at 7; TIA Equipment Comments at 25; TDS Comments at 4; WinStar Comments at 10-11.

¹⁸⁸ See *supra*, ¶¶ 4-9.

¹⁸⁹ 36-51 Second R&O, ¶ 39.

¹⁹⁰ *Id.*, ¶ 41; See also, Letter from William T. Hatch, Associate Administrator, Office of Spectrum Management, to Bruce Franca, Acting Chief, Office of Engineering and Technology, Federal Communications Commission pp. 1-2 (Aug. 31, 2002).

¹⁹¹ 36-51 Second R&O, ¶ 41.

¹⁹² 47 C.F.R. § 2.106 n.US311 (2002).

¹⁹³ See Section E, beginning at para. 68 *infra* for more details.

¹⁹⁴ See letter from Frederick R. Wentland, Associate Administrator, Office of Spectrum Management, NTIA, dated March 24, 2004, to Mr. Edmond J. Thomas, Chief, Office of Engineering and Technology, FCC. ("NTIA Letter").